

ATTORNEY DOCKET NO. SD-6997.1/S97652
SERIAL NO. 10/601,896
PATENT

REMARKS

Claims 1-31 are pending in the application. Applicants gratefully acknowledge the Examiner's allowance of claims 26-31. Claims 1, 3, 4, 6-12, 14, 16-20, and 22-25 have been rejected. The Examiner objected to claims 2, 3, 5, 13, 14, 15, and 21. Claims 1, 9-12, and 19-20 have been canceled by this amendment. Claims 2-8, 13-18, and 21-22 have been amended herein. Claims 32-35 have been added. Reconsideration is respectfully requested.

The Examiner objected to the drawings stating that Figures 1A, 1B, 2A, 2B, and 3 should be designated by a legend such as "Prior Art" because only which is old is illustrated. Figures 1A, 1B, 2A, 2B, and 3 have been corrected to include the required designation. Replacement sheets for sheets 1, 2, and 3 are included with this paper. Additionally, the Examiner objected to drawings 1A and 1B because they do not include reference sign(s) of 114, 116, 118, and 120 as mentioned in the description. Figure 1B has been corrected in the aforementioned replacement sheets to include the referenced elements of 114, 116, 118, and 120 as these elements are discussed in the specification with reference to Figure 1B.

The Examiner noted that the Information Disclosure Statement ("IDS") filed on 06/23/03 fails to comply with 37 CFR 1.98(a)(2). Applicants apologize for the error. The correct references were supplied, but the references cited on the IDS filed on 06/23/03 were from an IDS for a different case.

The Examiner objected to claims 2, 3, 5, 13, 14, and 15 because the "steps" had not been labeled or identified in the claims, such as a), b), c)... Claims 2, 3, 5, 13, 14, and 15 have been amended herein to correct the labeling omission. The Examiner also

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objected to claims 2, 5, 13, 15, and 21 as being dependant upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2, 5, 13, 15, and 21 have been amended herein in accordance with the Examiner's instructions. Reconsideration is respectfully requested.

Claims 1, 3, 4, 6-12, 14, 16-19, 20, and 22 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Number 5,768,156 to Tautges ("Tautges"). The present application and Tautges are both under obligation of assignment to a common assignee. Claims 3, 4, 6-12, 14, 16-19, 20, and 22 have been either canceled or amended herein in accordance with the Examiner's instruction in order to overcome this rejection. Reconsideration is respectfully requested.

Claims 23-25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hannerman "Improving the Surface Cycle Structure for Hexahedral Mesh Generation", ACM 200 in view of Dhont "A new automatic hexahedral mesher based on cutting", published 2001.

With regard to the rejection of claims 23-25, Applicants respectfully submit that Hannerman's work results in the removal of a self-intersection in the dual of a 2D manifold. The modifications to the 2D manifold allow a subsequent mesh generation algorithm (e.g., whisker weaving and its variant dual cycle elimination) to work more efficiently and robustly. Hannerman does not teach inserting sheets into a volumetric (3D) space. Hannerman's methods can be applied to a 2D manifold, but not to a 3D geometric space. Dhont's method requires that pieces of the volume be rejected as mesh cutting progresses. The present invention inserts elements on both sides of the

ATTORNEY DOCKET NO. SD-6997.1/S97652
SERIAL NO. 10/601,896
PATENT

volume, thereby enabling both pieces of the volume to be preserved. Dhondt's method cannot preserve both pieces of the volume. Dhondt even goes so far as to suggest tying dissimilar surface meshes together utilizing tied contacts or multi-point constraints to resolve the resulting dissimilarities between the meshes of the two sections of the volume.

There is no teaching or suggestion in either Hannerman or Dhondt to combine the references. Even if the methods proposed by Hannerman and Dhondt could be combined, which they cannot, there is no teaching to indicate that Hannerman's method would be feasible off the manifold. Finally, no combination of the two references can produce a conformal mesh in both halves of the cut volume as can be realized by the present invention. Therefore, it would not be obvious to one of ordinary skill in the art at the time the present invention was made to combine the references. In fact, one skilled in the art would be disinclined to combine Hannerman and Dhondt if attempting to achieve the present invention. Therefore, Applicants respectfully submit that claims 23-25 are in a condition for allowance and requests notice to that effect.

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PATENT

In view of the foregoing, Applicant respectfully submits that Claims 1-35, as amended or added herein, are in condition for allowance and requests notice to that effect.

Further and favorable consideration is respectfully requested.

Respectfully submitted,

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Enclosures: Three (3) Replacement Drawing Sheets (Sheets 1-3)